

1    **CLAIMS:**

2    What is claimed, is:

3    (1)    A sound source localization system comprising:

4    a sound reflecting element for generating delay information  
5    corresponding to a relative position between a sound source and  
6    sound collecting means;

7    a storage part for storing the acoustic data collected via said  
8    sound reflecting element; and

9    a sound source localization part for acquiring a sound source  
10   position, employing the acoustic data on which said delay  
11   information is superposed.

12   (2)    The sound source localization system according to claim 1,  
13   wherein said sound reflecting element is formed as a spheroid  
14   associated with the relative position between the sound source  
15   and sound collecting means to generate said delay information  
16   intrinsic to said relative position.

17   (3)    The sound source localization system according to claim 1,

1 wherein said sound source localization part comprises a  
2 standard template storage part for storing a standard template  
3 containing an intrinsic delay information generated by a white  
4 noise sound source, a background noise template storage part  
5 for storing a background noise template, a residual generation  
6 part for calculating a residual from said acoustic data,  
7 employing said standard template and said background noise  
8 template, and a selection part for selecting the standard  
9 template giving the least residual, employing the generated  
10 residual.

11 (4) The sound source localization system according to claim 3,  
12 wherein said standard template storage part stores the standard  
13 template and the sound source position giving said standard  
14 template in association.

15 (5) The sound source localization system according to claim 1,  
16 wherein said sound source localization system comprises at  
17 least one sound reflecting element, and simultaneously acquires  
18 positional data of the sound source including a range to the  
19 sound source, an azimuth and an elevation as said relative  
20 position.

21 (6) A sound source localization method for acquiring the

1 position of a sound source under the control of an information  
2 processing apparatus, said method comprising:  
3 a step of collecting the acoustic data with delay information  
4 superposed corresponding to a relative position between a sound  
5 source and sound collecting means;  
6 a step of storing said collected acoustic data in a storage  
7 part; and  
8 a step of reading the acoustic data with said delay information  
9 superposed and acquiring said relative position of said sound  
10 source designated by said delay information.

11 (7) The sound source localization method according to claim 6,  
12 wherein said delay information is generated by reflection from  
13 a spheroid associated with said relative position between the  
14 sound source and sound collecting means, and said delay  
15 information is generated intrinsic to said relative position.

16 (8) The sound source localization method according to claim 6,  
17 wherein said sound source localization step comprises a step of  
18 reading out a standard template from a standard template  
19 storage part for storing the standard template containing delay

1 information intrinsic to said relative position generated by a  
2 white noise sound source, a step of reading out a background  
3 noise template from a background noise template storage part  
4 for storing the background noise template, a step of  
5 calculating a residual from said acoustic data, employing said  
6 standard template and said background noise template, and a  
7 step of selecting the standard template giving the least  
8 residual, employing the generated residual.

9 (9) The sound source localization method according to claim 6,  
10 wherein said selection step comprises a step of referring to  
11 the selected standard template and acquiring the sound source  
12 position corresponding to said standard template.

13 (10) The sound source localization method according to claim 6,  
14 further comprising a step of simultaneously acquiring the  
15 range, azimuth and elevation as said relative position from  
16 said acquired sound source position to said sound source.

17 (11) A sound reflecting element for generating delay  
18 information corresponding to a relative position between a  
19 sound source and sound collecting means, wherein a reflecting  
20 surface of said sound reflecting element has an envelope made  
21 from a plurality of spheroids that are formed by rotating a

1 plurality of ellipses having the distance between the focal  
2 points corresponding to the distance from said sound source to  
3 said sound collecting means around an axis connecting said  
4 focal points.

5 (12) The sound reflecting element according to claim 11,  
6 wherein said plurality of ellipses are generated in relation  
7 with the elevation between said sound source and said sound  
8 collecting means and flatter as said elevation is greater.

9 (13) The sound reflecting element according to claim 11,  
10 wherein said reflecting surface is formed as an enveloping  
11 surface of said plurality of spheroids that are generated by  
12 rotating a corresponding ellipse around the axis connecting  
13 said focal points.

14 (14) A formation method of a sound reflecting element  
15 comprising:

16 generating delay information corresponding to a relative  
17 position between a sound source and sound collecting means;

18 a step of generating a plurality of spheroids by rotating an  
19 ellipse having the distance between the focal points

1 corresponding to the distance from said sound source to said  
2 sound collecting means around an axis connecting said focal  
3 points; and

4 a step of forming a reflecting surface by generating an  
5 enveloping surface of said plurality of spheroids.

6 (15) The formation method of the sound reflecting element  
7 according to claim 14, wherein said plurality of ellipses are  
8 generated in relation with the elevation between said sound  
9 source and said sound collecting means and flatter as said  
10 elevation is greater.